

# AVIATION

*The Oldest American Aeronautical Magazine*

AUGUST 3, 1925

Issued Weekly

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VOLUME  
XIX

## SPECIAL FEATURES

NUMBER  
5

AIRLINE COSTS

PRATT & WHITNEY AIRCRAFT CO.

NAVY-MACMILLAN EXPEDITION SCHEDULE

GARDNER PUBLISHING CO., Inc.  
HIGHLAND, N. Y.  
225 FOURTH AVENUE, NEW YORK

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AUGUST 3, 1925

# AVIATION

VOL. XIX NO. 5

Published every Monday

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The public demands for the transportation of passengers, mails and express matter by air must place a definite responsibility upon all those who are studying the problem of air operation.

There seems to be no question that Congress now organized well means the sympathetic support of the public is exact proportion to the judgment, experience and honesty which they exercise in their present operations. The greatest care must be used in expressing deep practical and conservative faith. The success or failure of this enterprise will depend largely on two factors, personnel and equipment.

**PERSONNEL** The personnel will be found available among that group of aviators produced by the war who are devoting their lives to the application of aviation to civilian needs.

**EQUIPMENT** Obviously the Aircraft Operating Companies, not themselves designers or builders, must select their equipment from the best which the aircraft industry can supply.

The Curtiss Aeroplane & Motor Company, the oldest airplane and motor producer in the country, and the organization that has been the center and production source of the best military airplane and motor, has devoted its entire energy toward the commercial problem. It wants fast planes to design, build and put in operation for the specific requirements of the Air Mail Service. The Curtiss Carrier Pigeon was at once conceived by the Chief Office. The expert committee of the National Air Transport, Inc., after a careful study of available equipment, recommended the Curtiss Carrier Pigeon, and the company is now placed as leader for a quantity of these machines.

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## AVIATION

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No. 5

## State or Federal Regulation

**A**IRCRAFT is not alone in having its problems of proper state or federal regulation. Recently, in Washington, the motor bus operators discussed their difficulties. It appears that approximately thirty states have passed laws requiring a bus operator to secure a certificate of public convenience and necessity authorizing him to operate. But the Supreme Court in three decisions this year has laid down as a principle of law, that regulation of interstate commerce is something inherently beyond the power of a state. Applying this principle, the court held the state laws to be unconstitutional to the extent that they sought to give state authorities power to regulate the entering into interstate business, to the unrestricted engagement of all persons desiring to operate bus lines through two or more states.

It would appear from the statements made by representatives of the motor bus operators that they prefer state regulation to that of a federal bureau. They believe that the people of the United States prefer that the regulation be under their direct local control than from a long distance bureau located in Washington.

One of the motor bus manufacturers said, "There is nobody in the country today who is more excited about the failure of having any regulation of interstate motor vehicle commerce than the operators themselves. They realize that if they are to be a public utility they must in return have a regulation of rules, service, safety and other regulations for protection against unscrupulous competition. Therefore it is not necessary to attempt to regulate the independent operator of interstate commerce. He is today crying for regulation, he is trying to figure out the best way in which he can operate his business under fair legitimate regulation. It seems to us that the interstate motor-vehicle commerce is a local transportation problem. We believe that the question of the regulation of rules, service, safety and other matters should be left to the public utilities commissions of the states through which the operation is carried on. We believe that in such operations there may be differences of opinion between the public utilities Commission of the various states and that, therefore, the Interstate Commerce Commission should not be so anxious in determining their difficulties."

This point of view should be of interest not only in connection with the future of the Window Bill but to the railroads, the electric railways as well as the motor vehicle commerce carriers. It may be found that aircraft cannot be regulated so simply as has been proposed, by a minor branch of the Department of Commerce. The very simplicity of the proposed method of directing the future of air transport in this country may be its weakest feature. With motor vehicle operators and the rail industry seeking a solution for

their problems, many new factors will enter into the aircraft situation. It is for these reasons that Aviation has not been working heavily prepared federal legislation. The claim that capital would not enter the air transport business until it was regulated has been disproved by the National Air Transport, the Ford Airline and other prospective aircraft ventures. Aircraft must take its place alongside of other commerce carriers and the more the regulatory difficulties of all are considered jointly, the quicker will a satisfactory solution be reached.

## The Maximum Danger Point

**I**F the planest day, flying was done only in very low airplanes on perfectly calm days and over a smooth field. Later, cross country flying was attempted and finally aircraft were flown in really weather. The progress of flying, under increasingly difficult conditions, is continuing. So strong has been a barrierment prevents a day from completing his scheduled flight, and night flying has become part of the routine. But the problems of flying through bad and thick weather have not, as yet, been solved.

A statistician, trying to present graphically the dangers of flying, would have to take into account the various stages of flying which have been attempted. The fundamental basis for his calculations would be the number of miles flown per flight accident, but in his figures he would have to take into account the ever expanding ability of the airplane. The number of miles flown per flight accident has shown a national average in spite of the greater difficulties which the airplane has been required to overcome. If the risk of flying a powered airplane over an unknown or calm weather were eliminated, it would be found to be practically nil, but even has never been content with such limited use, and as rapidly as the plane became perfected, he has dared to go a little beyond its limitations. As a result, what was a risky experiment one year has become commonplace the next. The danger curve has reflected this pioneering spirit and shows a much smaller number of miles per accident than would have been the case had pilots been more conservative. Aircraft are, however, rapidly reaching the maximum danger point in the flying of very fast planes at night, irrespective of weather. When this is accomplished the danger curve will reflect directly the improvements in the safety of aircraft and their operation.

Men have always asked the airplane to do a little more than the state of its development warranted. The most difficult operating conditions have almost been reached, and as there will be comparatively little of this class of flying, a minimal improvement in the average safety of flying may be expected.



to be the only practicable method of ascertaining the number actually necessary. Airplanes without engines or equipment were situated at \$12,000.00 each, based upon quotations and manufacturing cost data.

The number of engines required were determined by studies similar to those made for the airplanes. Engines were situated (based upon quotations) as follows:

one by Motor Aircraft Company \$10,000.00 per engine.  
400 by Liberty Engine Company \$10,000.00 per engine.  
100 by Pratt & Whitney Aircraft Company \$10,000.00 per engine.

The total machine fund was allocated \$200,000.00 for radio telephones (based on two thirds of new price) and \$200.00 for instruments, accessories, etc., which are not included in the original cost of the airplanes. These costs were assumed to decrease with larger purchases.

A detailed study was made of the number of motor trucks required to carry the total equipment of all airplanes standing at each station field each day. Questions were then addressed on several well known routes, in various countries, and road schedules developed. At least one automobile has to be allowed for each city for loading of equipment and similar special duties and at least one for the use of the local agent and his laws. These numbers have to be increased with the larger scale operations. Tractors have to be provided for both maintenance work on the fields and for towing "dead" airplanes around.

Estimates were compiled in complete detail, listing such items as equipment required, for the motor airplane shop and the largest shop in a section. The various costs were then assumed to vary between these limits for the intermediate sizes of shops. The costs were based upon the four sizes for the airplane repair shops but were sufficiently liberal to include what might be required in connection with the largest size, which requires an agent while their engines are being changed or overhauled.

Estimates were compiled in complete detail, listing such items of equipment, for the smallest and the largest engine shop as was done for the airplane shop. The equipment required for the intermediate sizes of shops was then assumed to vary between these limits.

For the engine and engine shops, costs were also assumed for the engine equipment for fitting every item of equipment for the largest and the smallest groups, to \$500.00 and a \$500.00 in, range being used as examples of this. The costs were found to vary only slightly and were sufficiently important to justify the use of a flat allowance per sq. ft. of floor space without regard to size.

#### Office Equipment

Brutal estimates of the cost of furniture and small equipment to serve for offices indicated that for efficiency per office employee could be used with safety. The assumption was made that large quantity purchases as well as more efficient use of equipment would enable making this cost down to the size of the largest office operations. The equipment was assigned in accordance with an estimate of the particular requirements of the employees and tasks developed. Adding machines and calculators were assigned in connection with the clerical requirements of the firms as were the typewriters. Duplicators, multipliers, etc. equipment was allocated somewhat arbitrarily in accordance with what would appear to be the requirements of the firms and assuming that existing equipment would be found to be necessary to streamline business.

An underground tank was assumed not at any field in the case of operating only one airplane per day. In all other cases, underground tanks are provided at every station field, none having more than one, in accordance with requirements. Pumps of all tanks were allowed for in all cases and the provision of underground of tanks started with the delivery of the airplanes per day. Duplicators and calculators were placed in the original barracks where no other means of storage are provided.

The sum of \$254.90 per field was allowed in all cases to cover the cost of miscellaneous supplies. This was based upon quotations covering a detailed list of instruments.

(To be concluded)

## General Patrick Reappointed

Air Force Secretary of War Davis has reappointed and Promoted George J. Pratt to the position of General Patrick for four years more as Chief of Air Service. General Patrick's present term ends Oct. 4, 1935.

General Patrick was born at Lexington, W. Va., on Dec. 13, 1863. He was appointed to the Military Academy from West Virginia. Upon his graduation from West Point on July 1, 1885, he was assigned to the Corps of Engineers and served continuously in that corps until he was made Chief of



Major H. Patrick

Air Service. Among other assignments, he was a member of the Board of Officers which supervised the making of the Battle of Marne. He also served as Commandant of the Engineer School, and was Chief Engineer of the American Forces in China, 1904-05.

At the commencement of the World War, General Patrick was assigned as Chief Engineer of the Line of Communication and afterwards became Director of Construction and Forestry. On May 29, 1918, he was designated by General Pershing as Chief of the Air Service of the A.E.F. His service in that capacity brought him wide distinction in all the Allied Armies. He was appointed Chief of the Air Service of the United States Army with the rank of major general, Oct. 4, 1921. General Patrick is the holder of the Distinguished Service Medal, and is a member of the Order of the British Empire, a Commander of the French Legion of Honor, a Commander of the Italian Order of St. Maurice and St. Lazarus, and a Commander of the Belgian Order of Leopold. His distinguished Service Medal depicts him.

"For exceptionally meritorious and distinguished service. He displayed much ability and devotion as Director of Construction and Forestry, and later as Chief of the Air Service of the American Expeditionary Forces, he performed and fully demonstrated the organization of this important department."

## Pratt and Whitney Aircraft Co. Formed

To Manufacture Aircraft Engines

On Wednesday, July 25, 1935 application was made for the incorporation under the laws of Delaware of The Pratt and Whitney Aircraft Company. The officers are as follows: Fred B. Beatty, President; George J. Pratt, Vice President; and E. L. Moore, Secretary and Treasurer. The new company intends to engage in the manufacture of aircraft engines. The corporation includes \$7,000,000 of preferred stock and 20,000 shares of its par value common stock.

achievement on a superior basis to that which obtains anywhere else. In addition, commercial development is making slow but steady progress and is now about to be placed in its proper perspective. The outstanding need of successful commercial aviation is improved flying equipment. The principal factor for the necessary dependability is the engine. It is toward this goal that the principal efforts of the Pratt & Whitney Aircraft Company will be directed.

The president, Fred B. Beatty, has been in the aviation field since 1918. During the war he was a captain in the Air Service being assigned to the Bureau of Aircraft Production which was in charge of the production of standardized engines and aircraft for the government. Later he became District Manager of Aircraft Production, for the New York District. After the war he joined the Wright Aircraft Company and became president, resigning the latter post in 1934. Mr. Beatty was born at Hamilton, Ohio on Nov. 3, 1887 and is a graduate of Princeton University.



Fred B. Beatty

The factory and offices of the company will be located at Hartford, Conn. It will design, part of the manufacturing facilities of the Pratt and Whitney Company which was recently the Populairized motor plant. The new aircraft company will be owned jointly by the Pratt and Whitney Company, experienced personnel who had had previous experience in the aeronautical industry and other important manufacturing interests.

The new company has issued the following statement of its plans and purposes:

"After very careful consideration, New England and Hartford were determined upon for the location of this enterprise, due to the splendid manufacturing conditions of the region and their well known and merited reputation for fine mechanical and their experience in all kinds of precision work. The Pratt & Whitney Company since 1889 have engaged an experienced reputation for the development and manufacture of the highest grade machinery, small tools, gauges and precision measuring equipment. The splendid resources of the plant and organization can be utilized to exceptional advantage in the specialized and exciting field of aeronautical engineering."

"Interest in the aeronautical field should be stimulated on account of the desire of manufacturing interests of long and successful standing to become active in it. Military aeronautics have become an established industry. With this realization by every important foreign government it is highly desirable that every effort be made to keep our aeronautical



George J. Pratt

The vice president of the Pratt and Whitney Aircraft Company is George J. Pratt who will be in charge of the Engineering work of the company. Mr. Pratt after graduating from the Massachusetts Institute of Technology in 1913, became an engineer for the Westinghouse Electric Company at Buffalo and later joined the Chrysler Automobile Company at New Brunswick, N. J. When the latter company became the Westinghouse Aircraft Corporation, Mr. Pratt was engaged from 1926 to 1929 in the development and manufacture of the French Hispano-Suiza engines for the government.

In 1929, he became Engineering-in-Charge of the Power Plant Laboratory of the Engineering Division of the Army Air Service at McCook Field, Dayton. In 1933, he returned to the Wright Aeronautical Corporation, the same having been changed, and has been chief engineer until he was named to become vice-president of the Pratt and Whitney Company.



















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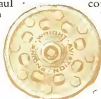
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Peru, Brazil, Cuba, Canada and other foreign governments are using Wright Whirlwind Engines. The commercial possibilities of these engines are exemplified in the recent installation of sixteen Whirlwind Engines in the planes of Huff-Daland Dusters, Inc., Georgia, who are taking important contracts for fruit tree and cotton boll weevil dusting. Impartial aeronautical and industrial engineers have decided that a considerable saving can be made by using air-cooled engines.

Bulletin No. 8-A containing a general description and technical information will be forwarded on request.



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